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<<实分析和抽象分析基础>>

图书基本信息

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内容概要

The core chapters of this volume provide a complete course on metric, normed, and Hilbert spaces, and include many results and exercises seldom found in texts on analysis at this level. The author covers an unusually wide range of material in a clear and concise format including elementary real analysis, Lebesgue integration on R, and an introduction to functional analysis. This makes a versatile text also suited for courses on real analysis, metric spaces, abstract analysis, and modern analysis. The book begins with a comprehensive chapter providing a fast-paced course on real analysis, and is followed by an introduction to the Lebesgue integral. This provides a reference for later chapters as well as an introduction for students with only the typical sequence of undergraduate calculus courses as prerequisites. Other features include a chapter introducing functional analysis, the Hahn-Banach theorem and duality, separation theorems, the Baire Category Theorem, the Open Mapping Theorem and their consequences, and unusual applications such as weak solutions of the Dirichlet Problem and Pareto optimality in Mathematical Economics. Of special interest is the unique collection of nearly 750 exercises, many with guidelines for their solutions. The exercises include applications and extensions of the main propositions and theorems, results that fill in gaps in proofs or that prepare for proofs later in the book, pointers to new branches of the subject, and difficult challenges for the very best students.

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